Abstract

A trench MIS device is formed in a semiconductor die that contains a P-epitaxial layer that overlies an N+ substrate and an N-epitaxial layer. In one embodiment, the device includes a drain-drift region that extends from the bottom of the trench to the N-epitaxial layer. A termination region of the die includes a half-trench at an edge of the die and an N-type region that extends from a bottom of the half-trench to the substrate. An insulating layer and an overlying metal layer extend from the surface of the epitaxial layer into the half-trench. Preferably, the elements of the termination region are formed during the same process steps that are used to form the active elements of the device.